



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101
JUN 30 1994

West Lake Lndtl
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Mr. Bruce E. Ehleringer
Senior Hydrogeologist
McLaren Hart
1000 Town Center, Suite 600
Southfield, Michigan 48075

Dear Mr. Ehleringer:

Attached hereto you will find EPA's comments to the RI/FS Work Plan for the West Lake Site Bridgeton, Missouri revised February 28, 1994. As a preliminary matter, Section VIII, paragraph a.(1) of the Administrative Order on Consent ("AOC") provides that "[i]f EPA disapproves of or requires revisions to the RI/FS Work Plan, in whole or part, Respondents shall amend and submit to EPA a revised RI/FS Work Plan **which is responsive to all of EPA's comments**, within forty-five (45) days of receiving EPA's comments" (emphasis added).

We have scheduled a meeting on July 13, 1994 at EPA's Region 7 Office at 726 Minnesota Avenue, Kansas City, Kansas to discuss the RI/FS Work Plan or any questions that you may have regarding EPA's comments. If you should have any questions please contact Diana Newman at (913) 551-7887 or myself at (913) 551-7728.

Sincerely,

Diana L Newman for

Steve Kinser
Project Manager
Removal Section
Superfund Branch
Waste Management Division

Enclosure

cc: Charles Arnold, MDOH
Mike Hockley, Spencer Fane
Steve Sturgess, MDNR



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WEST LAKE LANDFILL
EPA REVIEW COMMENTS FOR THE
RI/FS WORK PLAN DATED FEBRUARY 28, 1994

✓ 1. Page 1-2. Please explain why the text states, "...select a technically and economically appropriate remedial alternative". The Guidance for Conducting Remedial Investigations (RI) and Feasibility Studies (FS) Under CERCLA (EPA/540/G-89/004) states, "The RI continues to serve as the mechanism for collecting data to characterize site conditions; determine the nature of the waste; assess risk to human health and the environment; and conduct treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The latter also supports the design of selected remedies. The FS continues to serve as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions." The text should be expanded to define the purpose in accordance with the guidance.

✓ 2. Figure 3-8. Explain why there is no break in bedrock contours over the quarry. We suspect that the computer generated contours may be the explanation. We suggest that the text should clearly state that the bedrock contours over the quarry are projected to illustrate the probable bedrock configuration, if quarrying had not occurred.

✓ 3. Page 3-15. The text states "Groundwater contour data show essentially the same overall pattern [groundwater trough oriented in a northwesterly direction] within all three well completion depths. There are problems with this interpretation, such as:

- ♦ an apparent groundwater mound sits in the middle of the trough in Figures 3-10, 3-11, and 3-13;

- ♦ data control is insufficient to draw the NE limb in Figure 3-10, the SE extension of the 436' contour in Figure 3-11, or the open end of the 433' contour in Figure 3-13.

These issues should be described in the text. The text should state that additional data is necessary to adequately describe the hydrogeology. Observe that the data collected in the August 1985 for intermediate wells is the most comprehensive of the data sets available. State that Figure 3-14 was drawn from this data set and that there is no justification for assuming that the groundwater flow patterns in the shallow and deep alluvial aquifers do not conform to the same pattern. Using this pattern, the remainder of the groundwater maps were drawn. Point out that this model was used to select tentative locations for additional observation wells.

✓ 4. Page 3-15. The text on Page 3-15 of the work plan states, "Forty-six monitoring wells have been installed in and around the Site..." and Table 3-2 summarizes the well construction details for the monitoring wells which lists 56 wells. Please explain the discrepancy.

⑤ Page 4-10. This paragraph states that terrestrial species' contact with contaminated soil would be limited to areas of slope failure or isolated areas of loss of soil cover integrity. This is not necessarily true. A burrowing species may contact contaminated soil present beneath the surface.

✓ 6. Table 4-2. The Uranium & Decay Products contaminant migration potential for soils/sediments is described as LOW. The contaminants have already migrated to the adjacent property due to erosion. The potential would seem greater with actual migration of contamination documented. Please re-evaluate.

Discussion
⑦ Table 4-3. Please explain why the exposure routes for general public are not considered for air. RI activities that disturb the subsurface also introduce the possibility that airborne releases (of contaminated particulates) could occur. Airborne releases of contaminated particulates is also possible from waste-soil piles which are not stabilized. Also, please explain why ecological receptors are not considered to be addressed for soils/sediments and air.

✓ 8. Page 4-13. It appears the Conceptual Site Model does not take into consideration the contamination that has migrated to the adjacent Ford property. The adjacent property does not have limited access. The potential exposure would be greater to the general public than the landfill itself. The text should include a discussion related to the potential exposures associated with the adjacent Ford property.

→ ⑨ Page 5-2. The RI/FS Objectives should include, the data necessary to evaluate the ecological risk associated with the site.

✓ 10. Page 5-3. The radiological survey should include the adjacent Ford property.

✓ 11. Page 5-4. The text states that the local residential and commercial characteristics will be examined. The examination should include the population growth and decline.

{ 12. Page 5-4. Please explain what action will be performed prior to drilling within the landfill material (i.e., landfill gas venting). Methane in the range of 10-50 % LEL has been reported in Area 1. The WP does not discuss how the gas conditions will be addressed during the proposed activities.

13. Page 5-5. Please explain how the LEL meter will provide sufficient data to be used for determining risk associated with the air exposure pathway. Data currently exists which documents the methane levels range in Area 1 from 10% to 50% LEL.
14. Page 5-5. This paragraph states that two potential air contaminant concerns have been identified at the site-radon gas and landfill gas. There is a third potential concern-entrainment of contaminants in fugitive dust.
15. Page 5-6. The objective of remedial action is not to maintain the risk to human health and the environment, from conditions at the Site, to an acceptable level. The objective of remedial action should be to ensure the protection of human health and the environment..
16. Table 5-1. Groundwater can only be contaminated or unaffected depending on whether or not releases to the groundwater have exceeded a predetermined concentration. Remedial Objectives (ROs) for contaminated groundwater could include capture/recovery, corrective action, (i.e., reduction of observed concentrations), or control of contaminant migration. ROs for unaffected groundwater could include isolation from contaminated sources. Similarly, ROs for contaminated air would include actions to mitigate the spread of contaminants already in the airstream.
17. Page 5-8. The text states that the most-probable future land use is commercial/industrial. The text should be expanded to include that the property is currently zoned residential.
18. Table 5-3. The table should include risk assessment under the column "Data Uses" and under the column "Analytic Level" should state Level III for the landfill gas Work Plan activity. The risk associated with the landfill gas should be evaluated as a part of the activities planned at West Lake Landfill.
19. Table 5-4. The Data Quality Objectives table indicates the unit for water as pCi/l and soil as pCi/g. The chemicals listed in Table 5-4 are not radiological. The table needs to be corrected.
20. Table 5-4. Reporting limits for several contaminants in tap water and soil are above the calculated PRG. Text on page 5-14 indicates reporting limits were developed considering background levels are provided in only a few cases for contaminants of concern whose reporting limits exceed the PRG. Please provide a rationale for reporting limits exceeding PRGs.
21. Page 6-1. The Latty Avenue site cannot be identified as a background sampling site. The borrow area as a background

sampling site is not a good background location due to the different timeframes involved from the various borrow areas. It would provide questionable data which result in uncertainty and may be difficult to interpret the results.

22. Table 6-1 (p. 3 of 3). Air sampling for contaminants (including radionuclides) in fugitive dust should be added under the Action column for Air/Landfill Gas.

23. Page 6-8. Paragraph 2 states that the ion chamber instruments must be left in place 20-60 minutes before stable readings can be obtained. This is incorrect. Portable, hand-held chambers typically can provide indication of radiation levels in 20-40 seconds and will stabilize in as little as 3 to 5 minutes.

24. Page 6-6. The text states, "Pursuant to the USEPA request in a letter dated February 10, 1994, selected samples will be analyzed for uranium-234, thorium-232, protactinium-231, actinium-227, and lead-210." EPA's letter was dated February 18, 1994 and stated that thorium-232 was found at the St. Louis Airport Sites and that it should be investigated at West Lake. The other compounds (i.e., uranium-234, protactinium-231, ...) listed were already in the work plan to be investigated.

25. Page 6-6. The planned field activities should include air monitoring.

26. Page 6-7. The text states, "If erosional sediments have flowed onto the adjacent Ford property, then these deposits will be mapped." As the Dames and Moore Reports (Phase II and III) for the Ford property documents that erosional sediments have migrated from the West Lake Landfill. There should be no reason to consider the investigation of the Ford property at a later date. There is no security to prevent the public from having access to this property and it has been determined that radiological contamination exists at the surface. Evaluating the adjacent property should be done during this investigation. In addition to the investigation the need for immediate action (i.e., removal action) to eliminate the potential for exposure should be considered.

27. Page 6-8. The response to our previous comment 68 addressed our concerns. However, the text in the work plan did not incorporate the response. The response should be included in the text. We suggest that the response be added to Section 6.2 of the work plan and also the portion of the response which relates to the sampling procedures should be incorporated into the SAP.

Same X 28. Page 6-16. The work plan does not discuss the previous investigations regarding the methane concentrations at the site.

The Environmental Investigation and Health Impact Assessment Bridgeton Sanitary Landfill prepared by Laidlaw Waste Systems provides data which indicates methane levels in the range of 10-50 % LEL for methane. The data should be reviewed and considered prior to any drilling within the landfill. All regulations should be consulted prior to drilling and discussed as a part of this work plan. The GasTech combustible gas indicator will not provide sufficient data necessary to evaluate the risks associated with the air pathway for the baseline risk assessment. The elevated methane concentrations at the site have proven the need to include a landfill gas investigation in the work plan rather than be considered as a contingency.

- ✓ 29. Page 6-16. The response to EPA's previous comment no. 71 includes a procedure which states, "At the bore hole location, insert a hollow steel tube of sufficient length to reach the bottom of the bore hole". However, the work plan and SAP is not consistent and state that a PVC tube will be used. PVC tube is acceptable, however the discrepancy needs to be clarified.

We suggest that the tube be passed into the bore hole along the sidewall rather than in the center. The sidewall readings could eliminate problems due to counting geometry and access in large diameter borings. Readings taken from the sidewall are likely to be very reproducible. A method similar to water-level measurements, i.e., all readings will be taken through a tube lowered into the borehole against the northern-most sidewall etc. should be provided. The method would allow the logging position ~~to be "re-occupied"~~ and measured for QA/QC evaluation. In addition, sidewall readings would eliminate distance/shielding inconsistencies between small and large diameter boreholes. If the detector is equipped with a collimeter, you can assure that photons detected by the instrument originate from the nearest boring wall.

Consideration should be given to using a 3/8" X 3/8" NaI(Tl) detector with a portable multi-channel analyzer (MCA) instead of the SCA. Limited isotope identification may be more useful than a gross gamma count.

- Wd ✓ 30. Page 6-17. This paragraph states that the detector is calibrated semi-annually with a Cs-137 source to verify the relationship between cpm and exposure rate of about 30 cpm/uR/hour. It should be noted that this relationship only holds true for Cs-137.

- (31). Page 6-18. The standard operating procedures for the selected laboratory(s) must be submitted for EPA review and approval prior to initiating any fieldwork.

32. Page 6-20. This paragraph states that some monitoring well

locations may change based on the overland gamma survey. Please explain.

33. Page 6-28. The text states that development will continue until the physical parameters have stabilized and the water is non-turbid (<100 NTU). The turbidity should be less than 30 NTU unless determined in the field and agreed to by EPA that this level is not achievable.

34. Page 6-30. The text states that priority pollutant metals and radionuclide analyses will be performed on both filtered and unfiltered samples during the initial sampling round, and only on filtered samples during the second round. The analytical results for all samples should at least have total analyses. If filtered samples are to be obtained then they may be performed in addition to the total analyses. The data to be used for risk assessment will be total analyses only.

35. Page 6-32. Please clarify if surface water/leachate/rainwater run-off samples will be filtered or unfiltered for analysis. We recommend unfiltered analyses.

36. Figure 6-6. The surface water sampling locations do not fully characterize the potential impact from the site. One sampling location is not sufficient to characterize the northwest face of Area 2. Please rationalize why no samples are necessary north of Area 1 prior to entering surface water at Area 2. Please re-evaluate surface water sampling.

37. Page 6-34. Please provide the rationale for not analyzing priority pollutant metals in rainwater run-off samples.

38. Page 6-34. The text should reference Figure 6-3 where staff gage/surface water sampling locations are initially shown.

39. Page 7-28. This table shows cobalt as having an MCL of 5 ug/L. What is the source of this MCL?

40. Page 7-39. This paragraph states that non-promulgated criteria, advisories or guidance issued by Federal or State agencies may be considered as To Be Considered (TBCs) in determining clean up levels for the protection of public health or the environment. The State of Missouri has proposed Any-Use Soil Levels (ASLs) documenting maximum soil concentrations which are acceptable to human health in a residential setting. While the proposal was withdrawn in November of 1992, the state plans on re-proposing these ASLs in the near future; therefore Missouri's ASLs should be retained as TBCs.

41. Page 7-52. The preliminary list of remedial alternatives provided in the text is too limited. Please refer to EPA's

guidance "Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites". The text should be expanded to include other remedial alternatives.

42. Page 1-1. Please refer to comment 15.

**APPENDIX A
SAMPLING AND ANALYSIS PLAN**

43. Page 1-4. The environmental media which will be evaluated should not consider landfill gas as a contingency. The landfill gas has been evaluated in the EI and HI Assessment performed by Laidlaw which indicates elevated levels of methane. The Work Plan and Sampling and Analysis Plan should provide the procedures that will be utilized for evaluating the landfill gas as well as drilling in the landfill with high levels of methane. The data to be obtained for evaluating the landfill gas should be of quality (i.e., Level III) to be used in the baseline risk assessment. The EI and HI Assessment report indicates elevated levels of Ra_{222} within the landfill gas. The landfill gas should be fully characterized for all COPCs to determine the risk associated with the air pathway.

✓44. Page 3-11. Duplicate samples to be collected should be at least 10% of the total number of samples to be analyzed.

45. Page 3-13. Please clarify how the data of the overland radiological survey will form the basis for selecting boring locations (i.e., Will borings be collected at the 5 "hottest" locations irregardless of the areal extent of "hot" readings? Will the borings be completed at locations centered within the 5 largest zones of "hot" readings?).

46. Page 3-16. Additional information should be provided as to how all the soil piles will be managed (i.e., pile stabilization, dust releases, etc.).

47. Page 3-18. Radiological contamination has been detected in well south of Areas 1 and 2. Specific instances where radiological detections have been identified are from 1990-1991 water samples collected from monitoring wells D-89, S-75, MW-F2 and in 1986 water samples from D-81, S-54, I-56, and S-88. Please explain the rationale for not including these wells into the sampling program. Previous data should be considered.

PVC DISPOSABLE
48. Page 3-29. A dedicated bailer for each well should be used for sampling or purging.

✓49. Page 3-29. Duplicate samples to be collected should be at least 10% of the total number of wells sampled.

✓ 50. Page 3-30. Refer to comment 21. (BG)

51. Page 3-32. When obtaining surface soils to be sampled for VOCs, the sampling depth should be 18"-24". Air samples to be used for BRA

QUALITY ASSURANCE PROJECT PLAN

52. Page 3-3. This paragraph states that surface water sampling will be performed at the North Water Body, adjacent to Area 2. Section 6.8, page 6-34, third paragraph of the work plan states that surface water sampling will be performed at other low-lying water drainage retention ponds as well. Please clarify the discrepancy.

SITE SAFETY and HEALTH PLAN

53. Table 3-3. It should be noted that the Permissible Exposure Limit (PEL) of 1.25 rem/quarter for radioactive material only applies to individuals who have received radiological training to minimize their exposure and includes both external and internal exposures.



**McLaren[®]
Hart**

ENVIRONMENTAL ENGINEERING CORPORATION

March 30, 1995

Site:	Westlake LDF
ID #	MO2079900933
Break:	10.9
Other:	Wkpl-Comment 3-30-95

0714

Mr. Steve Kinser
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101



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SUPERFUND RECORDS

PLANNED RAINWATER RUNOFF AND LEACHATE SEEP SAMPLING LOCATIONS WESTLAKE LANDFILL AREAS 1 AND 2, BRIDGETON, MISSOURI

Dear Mr. Kinser:

The RI/FS Work Plan (Work Plan) for Westlake Landfill radiological Areas 1 and 2 (Site) addresses the collection of rainwater runoff and sediment samples at locations where rainwater discharges from these radiologically impacted areas, and the sampling of any identified leachate seeps. Planned rainwater sampling locations are to be based on inspections of the Site during rainy weather conditions; leachate seep sampling locations are to be based on routine inspections of the perimeter slopes of the Site.

Field reconnaissance during the time period of October 1994 to March 1995 indicates nine locations where rainwater discharges from the Site (four in Area 1 and five in Area 2), and one leachate seep (Area 2). All of these locations will be sampled in accordance with the Sampling and Analysis Plan (SAP) of the Work Plan (see Appendix A, Section 3.6 and Section 3.7). A map showing the locations of the planned rainwater runoff and sediment sampling, and the leachate seep sampling location, is attached.

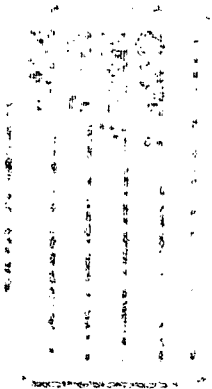
Rainwater Runoff and Sediment Sampling

As indicated in the SAP (Section 3.7, page 3-34), rainwater runoff samples will be collected within 24-hours of a rainfall event which produces, or is anticipated to produce, based on weather forecasts, greater than 1-inch of rainfall at nearby Lambert Field airport, and generates a sufficient quantity of runoff for collection of samples.

At each of the planned sampling locations, runoff will be directed through a calibrated "V-notch" weir to estimate flow volume at the time of sampling. Water samples will be collected on the upstream side of the weir using appropriate sampling containers as described in the SAP.

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March 30, 1995



Mr. Steve Kinser

March 30, 1995

Page 2

Sampling will be performed at least one hour after installation of the weirs to minimize potential impact of weir installation on water quality. Temperature, pH, and specific conductance, hardness and dissolved oxygen will be measured directly in the field at each sampling location or in a separate beaker, as necessary.

After collection of the rainwater runoff samples, the weirs will be removed. Sediment samples will be collected within 24-hours after the rainfall event at the location where the "V-notch" weir was previously located. Sampling collection and handling will be performed consistent with the procedures outlined in the SAP.

Rainwater runoff samples will be analyzed for the following suite of chemicals of concern as specified in the Work Plan (i.e uranium-235 and 238, thorium-230, radium-226, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), pesticides, polychlorinated biphenyls (PCBs) and cyanide), except priority pollutant metals. Radionuclide metal analyses will be performed on both unfiltered and filtered samples. Priority pollutant metal analyses are not being performed on rainwater runoff samples because erosional sediments are to be collected at the same location, and the sediment samples will provide a better indication of whether or not metals are being transported offsite by rainwater runoff.

Erosional sediment samples will include the following chemicals of concern (i.e. uranium-235 and 238, thorium-230, radium-226, SVOCs TPH, pesticides, PCBs, priority pollutant metals, and cyanide), except the VOCs .

Leachate Seep Sampling

As indicated in the SAP (Section 3.6, page 3-33), all leachate seeps that are identified will be sampled. One seep has been identified and a surface sample will be collected. If the volume of seepage is inadequate for the collection of a surface discharge sample, then sampling will include the installation of one or more lysimeters at the seep location.

Leachate samples will be analyzed for the complete suite of chemicals of concern (i.e uranium-235 and 238, thorium-230, radium-226, VOCs, SVOCs, TPH, pesticides, PCBs, priority pollutant metals, and cyanide). In addition, leachate samples will be analyzed for biological oxygen demand, chemical oxygen demand, pH, total dissolved solids, total organic carbon, chlorides, nitrite, nitrate, ammonia, total phosphorous, and sulfide.

Mr. Steve Kinser

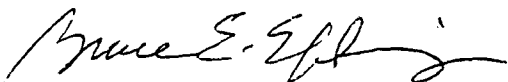
March 30, 1995

Page 3

If a sufficient quantity of liquid cannot be obtained, then a sample of the saturated soil will be analyzed for those chemicals of concern and parameters which could not be analyzed from the liquid sample. Chemical analyses of liquid samples will be prioritized based on the quantity of liquid available for testing, the analytical requirements, and the analytes which may have been detected in soil borings drilled through the landfill.

Should you have any questions regarding this letter, please do not hesitate to call Bruce Ehleringer at (810) 358-0400, or David Heinze at (314) 770-9233.

Sincerely,



Bruce E. Ehleringer
Managing Principal Geoscientist
(Hydrogeology)



David J. Heinze
Associate Engineer

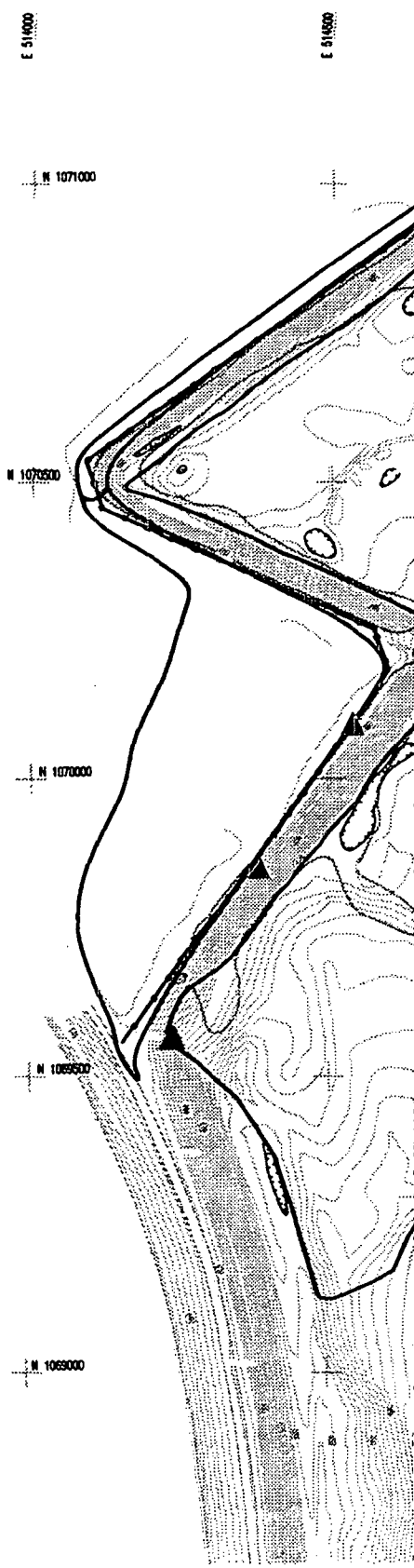


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DRAWN BY: KJP
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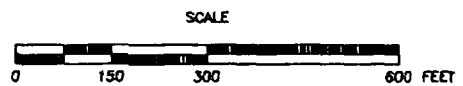
DESCR. APPR. BY:

REVISIONS



LEGEND

- ▲ RAINWATER RUNOFF AND SEDIMENT SAMPLING LOCATION
- ▲ LEACHATE SEEP SAMPLING LOCATION



APPROXIMATE LOCATIONS OF PLANNED
RAINWATER RUNOFF AND LEACHATE SAMPLES
AREA 1 & 2 ADJACENT AREAS
WESTLAKE LANDFILL
BRIDGETON, MISSOURI

PREPARED FOR
WESTLAKE SITE



DATE: 12/07/94	FIGURE 1	DRAWING NUMBER 556-B009
SCALE: AS SHOWN		